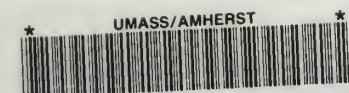


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# Office of the Inspector General

Commonwealth of Massachusetts

**Gregory W. Sullivan**  
Inspector General

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## **Analysis of Bechtel/Parsons Brinckerhoff's Reply to *The Boston Globe's* Investigative News Series Concerning the Big Dig**

GOVERNMENT DOCUMENTS  
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## ***Introduction***

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On February 9, 10, and 11, 2003, the *Boston Globe* published a three-part series detailing evidence of mismanagement of the Central Artery/Tunnel Project (CA/T Project) by Bechtel/Parsons Brinckerhoff (B/PB), the private management consultant that has overseen the Big Dig on behalf of the Commonwealth since 1985. Following the publication of the *Globe* series, which alleged that B/PB has profited from design mistakes and poor decisions contributing to more than \$1.6 billion in construction cost overruns to date, public officials pledged their support for cost recovery efforts:

- The Governor expressed outrage that B/PB had not been held accountable for costly mistakes, announced a plan to hire an independent engineering firm to review overruns for potential cost recovery from B/PB, and requested that B/PB's President and Chief Operating Officer fly to Boston to explain B/PB's performance.
- The Massachusetts Turnpike Authority Chairman announced that the Turnpike Authority's cost-recovery team has been pursuing more than 300 claims ranging as high as \$1 million against Big Dig contractors.
- The State Auditor announced that his office is reviewing five major Big Dig contracts entailing combined overruns of \$500 million to determine the potential for cost recovery.
- The Secretary of the Commonwealth announced that he would investigate record-keeping by the Big Dig to determine whether documentation of cost overruns is missing and filed legislation to extend the statute of limitations for Big Dig contract claims from six years to ten years.
- The Senate and House voted to extend the statute of limitations for lawsuits arising from Big Dig contracts to 10 years beyond the Project completion date.
- The Inspector General issued a detailed report that provided additional evidence of deficient work on the part of B/PB in connection with \$65 million in Project cost increases relating to ground movement, or "grout heave." The Inspector General also announced that he would require investigative production of all documents from B/PB, contractors, and cost recovery officials concerning cost overruns identified in the *Globe* series.

The Inspector General's Office's concurs with the major findings and conclusions of the *Globe*'s investigative series. The Office has identified more than \$730 million in contract

modifications associated with construction contracts initiated prior to final design approval. B/PB's defense is that it employed a "fast track" system. However, based on the Office's review of hundreds of thousands of Big Dig documents over the past 12 years, the Office is not aware of any "fast track" system that superceded B/PB's contractual obligations to prepare preliminary designs and to accept or reject final designs. The Office has also identified more than \$340 million in contract modifications resulting from "differing site conditions." However, the Office has identified cases in which the attribution of cost overruns to "differing site conditions" has been used by B/PB as a cover story for its failure to perform its contractual obligation to fully assess site conditions during the design stage. Thus, B/PB's claims mask, in many cases, the true nature of the overruns and obfuscate B/PB's culpability for its share of responsibility for these cost overruns.

The *Globe* series elicited a comprehensive response from B/PB, which released a 17-page, point-by-point reply on February 20, 2003. In the interest of advancing the cause of cost recovery, the Office has prepared a point-by-point response to B/PB's 17-page reply. The Office's response is provided in the following pages, along with a listing of selected CA/T Project oversight reports and letters issued by the Office between 1991 and 2003. At the end of this report is an acknowledgment of certain individuals and organizations whose positive contributions to the Project have benefited Massachusetts taxpayers and tollpayers.

Over the past decade, the Office of the Inspector General has documented numerous cases of B/PB's mismanagement of the CA/T Project and failure to institute aggressive cost containment measures. The Office's December 2001 report exposed the failure of the CA/T Project's cost recovery program: in six years, the Project had only recovered \$30,000 from about \$83.5 million in cost recovery related change orders. The report also found that the Project had set up the cost recovery program primarily to ensure federal funding, not to recover costs, and that B/PB's overly broad role in Project management undermined the Commonwealth's ability to hold B/PB accountable for its design work. The recent *Globe* series reached similar conclusions. The Office will

continue its efforts to ensure that the Commonwealth recovers all funds to which it is entitled on the CA/T Project.

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## **Analysis of Bechtel/Parsons Brinckerhoff's Reply**

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The following includes excerpted information from the February 20, 2003 response by Bechtel/Parsons Brinckerhoff (B/PB) to the findings in the three-part *Boston Globe* series. These excerpts also include B/PB's summary of the *Globe's* findings. The Inspector General's point-by-point response to B/PB follows each excerpt.

### **B/BP's Responsibility for Cost Overruns**

**Globe Finding:** The Project ran up "1.6 billion in construction cost overruns," of which at least \$1.1 billion was tied to B/PB errors.

**B/PB Reply:** The *Globe* contends that cost overruns totaling \$1.1 billion are B/PB's fault and responsibility. Virtually every construction project faces unanticipated challenges requiring contract modifications, known as change orders, that are not the result of neglect, mistakes, or abuse. The changes in Boston, approved by MTA, reflected a host of legitimate circumstances, including the discovery of unforeseen underground obstacles such as undocumented utilities and old wharves buried in landfill, state-mandated changes in the scope of project work, and schedule adjustments caused by factors such as public requests for noise or traffic mitigation.

The \$1.6 billion in question — which comes from B/PB's own charts — reflects legitimate modifications to original project construction contracts and cannot be construed as errors. Examples of these change orders include:

- \$321 million in project scope changes
- \$263 million in design development.
- \$357 million to cope with what engineers call "differing site conditions."
- \$152 million for unforeseeable schedule adjustments.
- \$85 million in approved costs to deal with third parties, such as utilities and property owners adjacent to the project.
- \$460 million in unclassified costs.

**Inspector General's Response:** The Inspector General's Office strongly concurs with the *Globe* conclusion that \$1.1 billion in cost overruns are linked to contracts begun before designs were completed and contracts with cost overruns related to differing site conditions. Our review concludes that more than \$730 million in contract modifications were associated with construction contracts initiated prior to final design approval. Our review also found that more than \$340 million in contract modifications resulted from

contracts that involved differing site conditions. In total, this represents more than \$1.07 billion in cost overruns associated with contracts that were either initiated prior to final design or were later modified due to differing site conditions. B/PB misstated the *Globe's* conclusion in its response when it rebutted the *Globe's* findings on this point. B/PB stated that the *Globe* had found that "at least \$1.1 billion was directly B/PB's fault." What the *Globe* actually said was that \$1.1 billion in construction cost overruns are tied to B/PB mistakes.

The Inspector General's Office concludes that at least \$1.07 billion in cost overruns are tied to contracts with incomplete designs or that encountered site conditions that were not planned for. According to B/PB, none of these overruns are attributable to B/PB's work. Since 1997, the Inspector General's Office has strongly advocated that overruns such as these be reviewed for potential cost overruns to identify B/PB's share of responsibility. In addition to the \$1.07 billion in cost overruns, the Project also incurred many millions of dollars more in administrative costs associated with these overruns. This \$1.07 billion figure represents a major portion of the universe of potential cost recovery claims that will become the subject of the major cost recovery initiative underway at the Turnpike Authority. B/PB defends itself by claiming that it employed "fast track" construction methods, thus purporting to explain why so many contracts were initiated prior to completion of final designs.

The Inspector General's Office has literally reviewed hundreds of thousands of Big Dig documents during the past 12 years and is not aware of any verification of B/PB's claim that a "fast track" system was implemented to supercede B/PB's contractual obligations to promulgate preliminary designs and to accept or reject final designs to facilitate construction.

Similarly, B/PB defends itself by stating that \$357 million in cost overruns were incurred due to unexpected "differing site conditions." The Inspector General's Office concludes that in many cases, the categorization of cost overruns as "differing site conditions" has been used by B/PB as a cover story for its failure to perform its contractually obligated duties to assess site conditions during the design stage. Thus, B/PB's ready claims of



“fast track” and “differing site conditions” masks, in many cases, the true nature of the overruns and obfuscates B/PB’s culpability for its share of responsibility for these cost overruns. The Inspector General’s Office and the State Auditor’s Office, as is detailed in this report, have presented to B/PB and the Turnpike Authority many instances wherein cost overruns were related to design changes that should have been part of the original design. The Inspector General’s Office concludes that what B/PB and the Turnpike Authority calls “fast tracking” has very often been nothing more than spending millions for catching up to the Big Dig construction schedule because of prior design-related delays.

An example is the so-called “early opening” of the Ted Williams Tunnel. The Inspector General’s Office formally complained to the Turnpike Authority in 1997 that \$23 million had been wasted to open the Tunnel “early.” In fact, this Office concluded at the time that the Tunnel opening did not occur “early” but actually occurred nearly two years late. The State Auditor’s Office also issued a report that cited \$44 million in earlier acceleration costs associated with the Tunnel opening. Thus the combined \$67 million was spent to make up for schedule slippage and delays caused by earlier mistakes. Thus, in the case of the Ted Williams Tunnel the “fast tracking” excuse was used to completely avoid scrutiny of B/PB’s potential liability.

## **Fleet Center Overruns**

***Globe* Finding:** B/PB failed to depict the Fleet Center arena in its preliminary designs, costing taxpayers nearly \$1 million in construction rework.

**B/PB Reply:** The *Globe* claims the Fleet Center was not included in preliminary designs, an error that resulted in almost \$1 million in additional costs. The truth is that incomplete plans drawn up by the final designer — not B/PB — led to \$30,000 of rework, only 3 percent of the *Globe*’s figure. The state took authority for approving final designs. Contrary to the *Globe*’s account, B/PB was not responsible for alleged flaws in the final design of this or any other part of the project.

**Inspector General’s Response:** B/PB responded that revisions to the Fleet Center design only cost \$30,000 and not the nearly \$1 million as claimed. However, the Inspector General’s Office wrote to the Project in September 1997 identifying nearly \$2

million in added costs for the redesign of the Vent Building abutting the Fleet Center. This redesign was made necessary because the Project failed to identify an easement granted to the Fleet Center by the Highway Department in 1993. This was clearly an error made during design that has gone uninvestigated. In addition, the Project had to expend more than \$500,000 to redesign a water line that conflicted with existing utilities. B/PB failed to identify these existing utilities. This issue was never investigated.

### **B/PB's Contractual Responsibilities**

**Globe Finding:** During the 17 years it has managed the Big Dig, Bechtel has neglected to perform basic work called for in its contracts.

**B/PB Reply:** As management consultant to the Massachusetts Turnpike Authority (MTA) on the "Big Dig" project, B/PB has been responsible for preliminary design, management of the final design process and construction by other consultants and contractors, and reporting on the project's overall cost and schedule. The state has always maintained authority and responsibility for policy-level decision making, direction of the project, and oversight of B/PB.

The state hired other engineering and construction firms to take responsibility for final design and actual construction. Each designer and contractor is responsible to MTA for its cost, schedule, and work quality. B/PB does estimate the costs of individual contracts, monitors them for adherence to budget, schedule, and contract terms; provide quality assurance services; and oversee the contractors' safety programs. B/PB is not responsible for checking design submittals and is not responsible for their content — yet the *Globe* blames B/PB for any and all alleged flaws in the final design of the project.

**Inspector General's Response:** The Inspector General concurs with the *Globe* finding and believes that B/PB misrepresents its contractual role. Based on B/PB's response it would appear that B/PB has been paid nearly \$2 billion to simply monitor these design contracts, process payments, and pass documents through to the Turnpike Authority. For \$2 billion, the Commonwealth expected B/PB to do more than shuffle paper. The Inspector General's review of B/PB's contract with the Commonwealth has found the following:

- a) The first line of the contract specifically states that B/PB should "manage the design and construction of the" Project.

- b) The contract section “Final Design” states that B/PB “shall review and submit for Department approval all SDC designs and work products for:
- Conformance with Project design criteria, standards, specifications, budgets, schedules, environmental commitments and other requirements;
  - Conformance with accepted professional standards for quality and other professional standards as defined by the Department;
  - Overall coordination between disciplines and different design packages;
  - Consistency with final design packages completed by others; and
  - Consistency with the preliminary design.
- c) The contract allows for B/PB to perform final design work as directed by the Turnpike Authority. In some instances, B/PB did perform final design work and did sign and stamp drawings.
- d) The contract section “Review of Design Submittals,” states that B/PB shall perform technical reviews of SDC [section design consultants] design submittals and “shall accept or reject SDC submittals based on these reviews.” The same contract section provides that the consultant shall perform “an independent peer review of the 75 percent design submittal by the SDC.”
- e) The contract section “Final Design Phase,” states that B/PB shall comment on final design and construction bid documents prepared by the SDC and that these comments should reflect SDC compliance with Project standards, design intent, and coordination with other design contracts.
- f) The contract section “Structural Analysis of Joint Development” calls for B/PB to “verify feasibility and structural integrity” of certain designs.
- g) The contract section “Design Management” calls for B/PB to provide a qualified design management team to oversee SDC services and to maintain “the availability” of recognized experts in relevant fields to provide advice, opinions, and to review “design problems of a special nature.”



- h) The contract section "Architecture" specifically states that B/PB has the responsibility to design or manage the design of highway and building architecture as well as associated elements.
- i) The contract calls for B/PB to perform quality control for the Project.
- j) The contract section "Review of Final Design Submittals" calls for B/PB to "perform reviews for all design submittals made by SDCs." According to the contract, B/PB reviews final design work five separate times for each contract and "recommends" to the Turnpike Authority whether the SDC work should be approved, changed, or rejected.
- k) The contract calls for B/PB to conduct studies to identify alternatives for each Project structure, including recommending through final design, two structural types for bridges and viaducts valued at more than \$10 million.
- l) Under the contract, B/PB provides and manages survey and mapping services through final design. This includes the identification of underground utilities and existing conditions.
- m) The contract calls for B/PB not only to perform preliminary design work, but to prepare standard and directive drawings, design manuals, and other design guidelines to be used by the SDCs during final design. According to the contract, these design documents "serve as the basis for SDCs to perform the final design." In a number of cases the SDCs attributed errors to these design standards prepared by B/PB and imposed upon the SDCs by contract.
- n) The contract calls for B/PB to inspect field construction conditions "for technical conformance to design." Therefore, B/PB has a key role to play in identifying and evaluating whether errors relate to design work or construction quality.
- o) The contract section "Changes and Claims Administration" requires that B/PB prepares cost and schedule evaluations and process changes and claims proposed

by the SDCs and other consultants. B/PB must also “ascertain potential claim situations.”

### **B/PB’s Responsibility for Field Surveys**

**Globe Finding:** B/PB neglected to perform basic work called for in its contracts, such as conducting crucial field surveys of the elevated Artery. As a result, contractors incurred large overruns. Such failures cost the state more than \$350 million.

**B/PB Reply:** The \$350 million reflects costs to deal with what engineers call “differing site conditions” — unexpected obstacles to construction, such as undocumented utilities. These are inevitable when building underground in a historic urban area.

A detailed survey of the Artery was not done completely in advance of construction, since the contractor was required to do a survey prior to building the Artery underpinning. This standard industry practice saved the cost of doing the survey twice. The costs incurred to deal with issues that were identified by the contractor’s survey would have had to be paid for whether or not the survey was done before the design.

**Inspector General's Response:** Under B/PB's contract with the Commonwealth, B/PB is required to provide and manage survey and mapping services through final design. This includes the identification of underground utilities and existing conditions. As explained in the section entitled “B/PB’s Responsibility for Cost Overruns,” the Inspector General’s Office concludes that in many cases, the categorization of cost overruns as “differing site conditions” has been used by B/PB as a cover story for its failure to perform its contractually obligated duties to assess site conditions during the design stage. While “differing site conditions” are an expected occurrence on any construction project of the Big Dig’s magnitude, this Office has pointed out repeatedly in the past and reiterates now that B/PB has claimed no responsibility for these overruns.

### **Inaccurate Designs**

**Globe Finding:** Construction on many of the Big Dig’s major contracts began with incomplete and inaccurate designs, causing costly delays.

**B/PB Reply:** All project designs were essentially complete when construction began, with one major exception: the ongoing mechanical and electrical design work at the time the Mainline Tunnel and Ventilation Building contracts were signed.



The individual section design consultants, not B/PB, signed off on the design drawings associated with their contracts. They are the responsible designers of record.

**Inspector General's Response:** The Inspector General does not believe B/PB's response is accurate. The hundreds of millions of dollars worth of claims relating to design development issues and the hundreds of design update packages indicates that designs were not 100 percent complete when awarded for construction. In the recent report issued by the National Academy of Engineering for the Turnpike Authority, the Academy states that "the CA/T work packages . . . frequently required modifications to accommodate project-wide systems that were designed in later packages." In addition, this Office has reported, on numerous occasions since 1994, that many change orders could have been avoided had design elements been included before a construction package was put out for bid.

### **Incomplete Designs**

**Globe Finding:** B/PB acknowledged that three major construction contracts went out to bid while designs were "substantially incomplete."

**B/PB Reply:** The three other allegedly incomplete designs referenced in the *Globe* article were still pending at the time bids were first advertised, in order not to miss a window of opportunity for federal funding.

**Inspector General's Response:** Notwithstanding B/PB's claim that it approved construction start-up based on incomplete designs in order not to miss a window of opportunity for federal funding, the resultant problems contributed to massive cost overruns that in turn led the U.S. Congress to institute a funding cap on the Big Dig. The frustration of Congress about these overruns and the resultant imposition of the funding cap has left Massachusetts bearing at least \$6 billion of Big Dig costs, excluding interest on bond debt, by far the largest state burden for a federally funded public works project in U.S. history.

## **Fast Track Documentation**

**Globe Finding:** No documentation of the so-called fast track plan exists, calling into question whether it was an actual initiative or an after-the-fact justification.

**B/PB Reply:** State officials, who continuously reviewed B/PB's work and approved all bids and contracts, supported the fast-track approach ever since construction began in 1991.

**Inspector General's Response:** This issue has been previously discussed in this report. The Inspector General's Office has literally reviewed hundreds of thousands of Big Dig documents during the past 12 years and is not aware of any verification of B/PB's claim that a "fast track" system was implemented to supercede B/PB's contractual obligations to promulgate preliminary designs and to accept or reject final designs to facilitate construction. B/PB's ready claims of "fast track" mask, in many cases, the true nature of the overruns and obfuscate B/PB's culpability for its share of responsibility for these cost overruns.

## **Haymarket Square**

**Globe Finding:** The cost to build tunnels from Haymarket Square to North Station grew nearly 60 percent over the contractor's bid, an object lesson in B/PB's mismanagement.

**B/PB Reply:** Evidence shows that the growth in costs was directly related to the conditions encountered at the site, not mismanagement. Assertions to the contrary by Jay M. Cashman Inc. are those of a contractor trying to build a case for a claim. Cashman had ample time to review all relevant documents and addenda during the bid phase.

**Inspector General's Response:** This Office concurs with the *Globe*. Records show that B/PB sent the contractor 16 design revision packets that included hundreds of revised drawings. These changes raised more than 1,800 issues that needed to be clarified regarding differences between the revised design and actual field conditions. B/PB's response overlooks these matters of record, again denying any responsibility for the cost overruns.

## **MBTA Green Line**

**Globe Finding:** On Dec. 22, 1994, MBTA officials met with B/PB to discuss plans to raze a ramp near the Fleet Center. MBTA's representatives told B/PB that it would cause the Green Line and the ramp to collapse. B/PB did not change the plans. Three years later, conceding that MBTA officials were right all along, B/PB ordered an elaborate support system for which Cashman received \$250,000.

**B/PB Reply:** The project coordinated with MBTA throughout the entire course of the design. The New Chardon Street off-ramp, which was a common train and roadway ramp developed jointly with MBTA and the Big Dig, did require additional underpinning due to its proximity to a slurry wall and utility work. Although underpinning was part of the design bid by the contractor, additional costs resulted from revisions to this underpinning due to site-specific field conditions as opposed to lack of coordination with MBTA.

**Inspector General's Response:** B/PB disregards, in its response to the *Globe*, its clear obligations under its contract concerning design submittals. The contract section "Review of Design Submittals" states that B/PB shall perform technical reviews of SDC [section design consultants] design submittals and "shall accept or reject SDC submittals based on these reviews." The same contract section provides that the consultant shall perform "an independent peer review of the 75 percent design submittal by the SDC." The contract section "Final Design Phase" states that B/PB shall comment on final design and construction bid documents prepared by the SDC and that these comments should reflect SDC compliance with Project standards, design intent, and coordination with other design contracts. Site specific conditions could have been identified or anticipated in the construction contract. A cost recovery should identify which party, if any, was at fault.

## **Ted Williams Tunnel**

**Globe Finding:** Drawings for the Ted Williams Tunnel left a 4-foot gap between tunnel sections, causing \$307,000 in new work.

**B/PB Reply:** There was an error in the final design of the tunnel sections where two contracts came together. It was corrected with the extension of a cut-and-cover tunnel. The Cost Recovery Committee concluded there were \$9,000 in additional costs, which

B/PB, and the two section design consultants responsible for the final design of the tunnel sections, agreed to bear.

**Inspector General's Response:** In this case, B/PB admits that an error occurred. B/PB also states that B/PB and the final designer agreed to bear \$9,000 in additional costs, indicating to this Office that the needed design revisions were performed. The total cost of this error was \$307,000. Thus, the tollpayers bore \$298,000, or 97 percent, of the cost of this error. The fault for the error in this case resides with B/PB or the final designer, not the tollpayers.

## **Design Updates**

**Globe Finding:** Once construction began, B/PB and the design firms it managed fired out hundreds of “design update” packages to contractors already in the field, often with new information that conflicted with other designs. Some of those updates arrived years into construction.

**B/PB Reply:** Issuance of design update packages to construction contractors is normal construction industry practice as designers react to newly discovered site conditions, approved initiatives for cost containment and schedule recovery, and updates from mechanical and electrical designers. Many Big Dig contracts involved five to six years of construction.

**Inspector General's Response:** Some design update packages during construction are justified and unavoidable. However, as discussed earlier in this report, this Office has reported on numerous occasions since 1994 that many change orders could have been avoided had the necessary design elements always been included before construction packages were put out for bid.

## **Quality Control**

**Globe Finding:** B/PB's quality control was lax, based on the findings of Federal Highway Administration inspectors. One steel beam was made of a weaker grade of steel than project regulations allowed.

**B/PB Reply:** The FHWA inspection report rated the overall quality of work on the site as “satisfactory.” Furthermore, the Quality Assurance Process Review conducted by



FHWA in July 2000 listed the process for acceptance of metal products as one of five noteworthy accomplishments.

Inspectors discovered one beam of lower-grade steel, caused by a supplier error. It was a temporary bulkhead end pile. The contractor requested that the temporary pile be accepted rather than removed, since it carried a reduced load and was not a structural member. The final designer agreed.

**Inspector General's Response:** Records reviewed by the Office support the *Globe's* conclusion and contradict B/PB's reply. B/PB understates the magnitude of the problems identified by the U.S. Department of Transportation in its inspection report of February 24, 1999. B/PB minimizes and mischaracterizes the federal criticism by saying that the federal report only identified one beam of lower grade steel.

Records show that the Department of Transportation cited three additional problems contributing to its conclusion that the overall quality of work was unsatisfactory. Records include the following:

- Removal of live piles: Improper procedures used in the removal of an unknown number of load bearing shafts that had previously supported the elevated Central Artery;
- Soldier piles (temporary supporting shafts): lack of the specified steel quality reports tests of additional support shafts of the Central Artery.
- Steel installed on the contract did not match up with the steel quality control tracking numbers for this phase of the contract.

## **Fort Point Channel**

**Globe Finding:** In November 1999, Drew King, a B/PB field engineer, noted in a report that a steel dam built to keep water out of Fort Point Channel tunnel area was not sealed. B/PB never informed state managers of King's findings or directed the contractor, Modern Continental Construction Co., to make the needed repairs. Two years later, a massive leak erupted, causing the largest construction setback, and delaying I-90's opening at a cost of at least \$41 million. A state inquiry concluded that B/PB had relied on an "unreasonable" design in the first place, according to a confidential report by the law firm of Kirkpatrick & Lockhart. In October 1997, an



independent group of engineers, who were invited to review the designs before construction began, called them “unrealistic.”

**B/PB Reply:** Of the \$75 million worth of specific B/PB mistakes alleged by the *Globe*, more than half is accounted for by a Fort Point Channel leak for which B/PB was not found at fault by MTA’s independent engineering consultant.

The MTA’s independent engineering consultant, retained after the leaks occurred, did not find fault with B/PB’s performance. The sheeting discontinuity was the result of construction contractor noncompliance with the contract documents and MTA held the contractor accountable for that deficiency.

The quoted comment about B/PB relying on an “unreasonable design” is taken out of context and demonstrates the *Globe*’s lack of understanding of complex engineering issues. The law firm Kirkpatrick & Lockhart was citing a prior consultant’s conclusion in October 1997 that some design assumptions were unrealistic.

**Inspector General’s Response:** A report by an independent expert did in fact conclude that B/PB relied on an unreasonable design for this contract. Under its contract, B/PB was responsible to “perform reviews for all design submittals made by SDCs.” According to the contract, B/PB is responsible for reviewing design work five separate times for each contract and for recommending to the Turnpike Authority whether the SDC work should be approved, changed, or rejected. After B/PB disagreed with the negative assessment of the independent expert, the matter was dropped. This contract represents an example of a potential cost recovery issue that should be reviewed.

The Fort Point Channel issue has been of interest to both this Office and the State Auditor Joseph DeNucci. In fact, the Auditor issued a report pertaining to Fort Point Channel that identified design problems. This Office has never been satisfied that the design problems stemming from the Fort Point area have been adequately reviewed by the independent consultants hired by the Big Dig. In one case, this Office referred an issue to the State Ethics Commission because we believed that a conflict of interest existed for one of the so-called independent consultants who reviewed the issue. B/PB is contractually responsible for both design and construction management. To the extent that the failures in the Fort Point Channel stem from management errors, B/PB should be held accountable.

## **Cost Recovery Committee**

**Globe Finding:** The Cost Recovery Committee routinely overlooked or excused B/PB's errors.

**B/PB Reply:** The project's Cost Recovery Committee — which has authority to investigate allegations of unjustified cost overruns — “exonerated [B/PB] in all 15 cases it considered against the [joint venture].” The committee, which consisted of the state project director, state construction manager, and Federal Highway Administration project engineer, was independent of B/PB. Its findings were based on timely and balanced investigations by expert evaluators, not judgments by reporters following old paper trails taken out of context.

The Cost Recovery Committee is the responsibility of MTA, not B/PB. Its members — the Big Dig's state project director, state construction manager, and Federal Highway Administration project engineer — are independent of B/PB.

**Inspector General's Response:** B/PB was responsible under the contract for providing the Turnpike Authority with “technical support” for the cost recovery process, including the “review of plans, specifications, and correspondence; review of design and construction PCNs [change orders], contractor proposals, contract modifications; support Area Team analysis as requested; provide written reports and recommendations when necessary and appropriate; attend sessions of the Cost Recovery Committee; and provide technical assistance to the Area Teams and Committee where appropriate or as requested” by the Turnpike Authority. B/PB was also responsible to “ascertain potential claim situations.”

A report issued in December 2000 by the Inspector General concerning the Big Dig's cost recovery program stated: “B/PB's role in the cost recovery process is akin to the fox guarding the hen house. B/PB's extensive role in preliminary design and final design management should preclude any role in a program - such as the cost recovery program - that purports to examine problems that may have been caused by B/PB's own work. But B/PB controls the data.”

## Referrals to the Cost Recovery Committee

**Globe Finding:** The state relied on B/PB to point out flaws in its own designs and management. B/PB referred just three cases to the Cost Recovery Committee.

**B/PB Reply:** Numerous authorities, including federal and state transportation officials, have always had the right and did take the opportunity to flag potential cost recovery issues. According to the MTA legal department, the *Globe* had access to only 71 closed cases of a total of more than 350 cost recovery cases. It appears that the *Globe's* statistics about B/PB were derived from a small sample. In addition, many of the cases do not document the referral source. B/PB's recollection is that it initiated more cases than the *Globe* identified.

**Inspector General's Response:** This Office strongly concurs with the *Globe's* conclusion. Our review of the cost recovery program in 2000 did not identify any cost recovery or other action against B/PB. The Commonwealth paid B/PB to review, negotiate, and manage thousands of change orders worth billion of dollars. B/PB also had virtual control over the change order process by virtue of its presence in the field. B/PB's reply that many authorities have had the right to identify potential cost recovery issues is not responsive to the *Globe's* conclusion that B/PB failed to perform its duties under the contract and to point out flaws in its own management. This Office reached the same conclusion independently in December 2000 when this Office recommended that in regards to cost recovery, B/PB and the Turnpike Authority be delinked. This Office also stated: "The Commonwealth's over-reliance on B/PB – and B/PB's dominant role in the Project - provides insulation from cost recovery actions and shields B/PB from any attempt by the Turnpike Authority to hold the joint venture accountable through the cost recovery process for deficient design." Routinely, when this Office or the State Auditor's Office referred a matter for potential cost recovery, we have been rebuffed. In a joint letter issued with the State Auditor in October 2001, this Office stated: "Since its inception, the cost recovery process that holds contractors responsible for cost overruns has been totally reliant upon B/PB. It is disturbing, but not surprising, that under such a claims recovery process not a single claim has been filed against B/PB, even though possible substandard performance by B/PB may have contributed directly to billions of dollars in added costs."



## **Flawed Contract**

**Globe Finding:** The state's contract was fundamentally flawed, effectively rewarding the firm for delays and overruns.

**B/PB Reply:** B/PB has received a standard compensation package for the professional services it provides. This includes fees for service as well as reimbursement of its labor and operating costs, a normal industry practice. It has always had project incentives to minimize delays, overruns, or both.

**Inspector General's Response:** B/PB does not address the *Globe's* underlying conclusion that B/PB's compensation indirectly increases in proportion to Project length and cost. The Inspector General's Office independently reached this conclusion as well. In May 2000, this Office wrote that under its contract, B/PB is paid principally on a cost-plus-fixed-fee basis, which fails to create the necessary incentives or to hold B/PB accountable for meeting CA/T Project budget and schedule goals. Most of B/PB's compensation is not tied to deliverables or other measurable performance standards; indeed, project delays and construction contract changes serve to increase B/PB's compensation.

## **B/PB's Fee**

**Globe Finding:** B/PB will receive more than \$2 billion by project completion, including \$180 million in profits.

**B/PB Reply:** The *Globe* inflated B/PB's fees by 50 percent. Currently, it is estimated that for the period 1985-2005 B/PB will receive \$122 million in fees and its subconsultants will receive \$26 million. B/PB's fees represent only about 8 tenths of 1 percent of project costs. The vast majority of B/PB's revenues are simply pass-through payments—reimbursements for labor and direct expenses or for payments to other subcontractors.

**Inspector General's Response:** The Inspector General strongly concurs with the *Globe's* conclusion. B/PB claims that its fee will only be \$122 million. However, this \$122 million is only the profit guaranteed to B/PB under the contract. It does not include the overhead. For every \$100 paid to B/PB for direct costs, it receives an additional \$110 for indirect costs.

## **Formal Review Procedures**

**Globe Finding:** No formal procedure existed to oversee B/PB's performance at all until 1994.

**B/PB Reply:** There have been dozens of audits, investigations, and reviews by federal, state, and local officials as well as news media. Many critics have questioned B/PB's project management, but few specific charges have been substantiated upon close review.

B/PB's performance has continuously been monitored by MTA and several federal and state agencies, including FHWA, Department of Transportation Inspector General, State Auditor, and State Inspector General, as well as several independent consultants engaged by MHD/MTA over the years. From the beginning of the project, MHD/MTA put in place a "part/counterpart" organization, by which state design, construction, and services officials shadowed their counterparts at B/PB. In the late 1990s the project adopted an Integrated Project Organization at MTA's behest. MTA inserted employees directly into the construction and project management team, where they directly supervise day-to-day project activities. For example, the project's construction manager is a state official to whom B/PB staffers report.

**Inspector General's Response:** This Office first raised this issue in 1991. Of note is that the original management agreement between the Highway Department and B/PB was drafted by B/PB. In 1991 we wrote: "The [management] Plan does not provide the Department with adequate means to hold B/PB accountable for managing the Project in a cost-conscious and responsible manner . . . the Plan as presently crafted does not go far enough toward providing the means to accomplish that end . . . Virtually all administrative control and oversight appears to be vested in B/PB." The Inspector General wrote in May 2000:

The Commonwealth's excessively broad project management contract with Bechtel/Parsons Brinckerhoff has impeded effective cost control and oversight, undermined public accountability on the CA/T Project, and eroded the Commonwealth's contracting leverage.

The Massachusetts Highway Department (MassHighway) selected the joint venture of Bechtel/Parsons Brinckerhoff (B/PB) from among five firms in 1985 to manage design and construction of the CA/T Project. Since 1985, MassHighway has paid B/PB nearly \$2 billion through a series of noncompetitively awarded contracts, also called "work programs." From



the beginning, MassHighway has turned over most administrative control and oversight of the Project to B/PB.

Although MassHighway is the designated recipient agency for federal highway funds and the signatory on the contracts with B/PB, MassPike now negotiates and oversees the contractual arrangement. A state law enacted over my objections in 1997, M.G.L. c. 81A, created the Metropolitan Highway System, designated MassPike as the future owner and operator of the CA/T facilities, and opened the door for MassPike to play a larger role in other arenas. With the approval of the Federal Highway Administration (FHWA) and under written agreement with MassHighway, MassPike now manages design and construction of the CA/T Project, including B/PB's consulting contract.

Under its CA/T-related consulting contracts, B/PB has prepared preliminary designs, overseen -- and, in some cases, performed -- final design work; implemented value engineering reviews and other quality control measures; overseen soils testing and remediation; prepared construction bid packages; overseen construction contracts; negotiated construction contract changes and claims; processed invoices; maintained management information systems; and performed many other functions, including general record-keeping.

B/PB as project manager is responsible for identifying the causes of major cost overruns and delays. In effect, this arrangement relies on B/PB to reveal problems even when such problems are associated with B/PB's own design work. This Office is aware of no evidence that B/PB has ever acknowledged making a mistake that contributed to increased costs and schedule delays. By contracting with B/PB to perform the full range of project management services and to oversee its own work, the Commonwealth has weakened its capacity to exert effective control over the cost and quality of the services B/PB provides.

Moreover, the structure of the contractual arrangement, under which B/PB is paid principally on a cost-plus-fixed-fee basis, fails to create the necessary incentives or to hold B/PB accountable for meeting CA/T Project budget and schedule goals. Most of B/PB's compensation is not tied to deliverables or other measurable performance standards; indeed, project delays and construction contract changes serve to increase B/PB's compensation.

The Commonwealth's near-total dependence on B/PB has eroded its negotiating leverage to the detriment of the public interest. I have repeatedly recommended that the Commonwealth's contractual arrangement with B/PB be reconfigured. CA/T Project officials have largely declined to do so precisely because they depend so heavily on

B/PB's expertise. As a result, the problems caused by this contractual arrangement have been perpetuated and exacerbated.

Now is the time to act: MassPike staff is currently negotiating the terms, cost, and duration of the next consulting contract with B/PB. Although CA/T construction is reportedly nearly 60 percent complete, opportunities still exist to strengthen the public interest protections in this contractual arrangement. MassPike should take steps to further reduce the scope of its contract with B/PB and to ensure that B/PB is no longer paid to review its own work. Design-related functions such as value engineering, quality control, quality assurance, and negotiation of construction contract changes and claims should be competitively procured from consultants independent of B/PB or provided by MassPike or MassHighway staff. Reducing the scope of the contractual arrangement with B/PB will enable MassPike to incorporate more meaningful performance requirements, including deliverables, and performance-based compensation provisions into future contracts with B/PB. B/PB has been the only game in town for too long, and taxpayers are paying the price.

The current management organization of the CA/T Project undermines the essential arm's-length relationship between the Commonwealth and B/PB.

In the past, MassHighway was prohibited by M.G.L. c. 29, §29A from allowing B/PB to supervise state employees assigned to manage and oversee the Project. However, MassPike is an independent authority with no such constraints on its organizational arrangements. Under the MassPike umbrella, Project officials have created a so-called "integrated project organization" combining MassPike employees and B/PB employees. According to CA/T Project managers, the integrated project organization was designed to match staff members' technical skills to jobs without regard to the organization paying their salaries.

The resulting organizational scheme has the potential to be an accountability nightmare. For example, MassPike's Director of Construction reports both to B/PB's top program manager and to the MassPike Project Director. This individual (the MassPike Director of Construction) has represented MassPike in contract negotiations with B/PB. This type of arrangement renders the CA/T Project vulnerable to divided loyalties and conflicting interests.

Project management plans prepared by B/PB and approved by the FHWA, and the Commonwealth have described the Project as a "dynamic, flexible and harmonious whole." MassPike's integrated project organization is the dangerously misguided product of that concept. Intertwining the CA/T oversight function with the private management consulting function is an invitation to fraud, waste, and abuse. I urge you to take immediate action to decouple and ensure appropriate separation of these two functions.

## **Payment of Overruns**

**Globe Finding:** B/PB reviewed and recommended the state pay all overruns. And yet hundreds, perhaps thousands of the overruns were rooted in missing or incorrect information in the design process supervised by B/PB.

**B/PB Reply:** This statement is categorically false. The state, FHWA, and B/PB undertake an extensive analysis for each change order. The merit of the issue is determined and then the commercial context of the issue is established. Over the life of the project, the average change order has been settled at approximately 50 percent of its claimed value. In summary, not all claims have merit and those that do are often not settled at the contractors' claimed value. Some are rejected entirely. Furthermore, to allege that "thousands of the overruns" are related to B/PB mistakes is false and totally unsupported. It should also be noted that all commercial settlements are approved by state and federal officials as part of the change order process.

**Inspector General's Response:** The Inspector General's Office concurs with the *Globe's* conclusion. The Office reached this same conclusion independently in May 2000 when the Inspector General wrote:

Deficient management practices on the CA/T Project have reduced the Commonwealth's capacity to generate accurate cost estimates on individual contracts, control spending, and predict and control future costs.

In letters and reports issued since 1991, my Office has identified numerous management practices that, if left uncorrected, were likely to obscure problems, increase costs, and hamper the CA/T Project's ability to predict and control costs. Recent reports by federal oversight agencies have corroborated my Office's findings. For example, my Office has raised concerns about poor or incomplete CA/T Project design specifications, the approval of major design changes after construction contracts have been advertised and awarded, and the removal of items from the contract scope of services to reduce apparent costs. Cost control -- and the ability to identify potential cost exposure -- has also been undermined by poor coordination between design consultants and construction contractors and the CA/T Project's propensity to view large cost overruns as isolated events.

CA/T Project management's avowed commitment to cost-consciousness and cost containment has not always been reflected in the actions and decisions this Office has reviewed. For example, the CA/T Project has frequently employed noncompetitive service procurement methods in the interest of expediency. My Office has questioned and criticized the CA/T



Project's award of unadvertised, sole-source contracts, some of which violated public bidding laws. The CA/T Project has also relied on the excessive use of change orders and amendments to existing contracts in order to procure work that was not included in the original scopes of services for those contracts.

Moreover, the CA/T Project's final design work for buildings and many of the value engineering reviews failed to assess the post-construction operations and maintenance (O&M) costs. Because O&M costs – a key factor in life-cycle costs – will be paid almost entirely by the Commonwealth, these costs should have been a significant factor in the decision-making processes throughout design and construction. These and other programs aimed at cost-saving opportunities have been flawed not in concept, but in execution. Not until about 1997, shortly after the \$10.8 billion cost estimate was announced, did this Office observe a concerted and consistent organization-wide effort commitment to cost containment.

This Office's reports and letters have consistently highlighted another deficient management practice: CA/T Project staff have ignored or circumvented internal management controls embedded in the CA/T Project's own written policies, procedures, guidelines, and agreements. For example, the CA/T Project's cost control efforts have been undermined by its own failure to consistently conduct claims avoidance reviews and other cost-control measures, document deficient site conditions, or invoke contract provisions that penalize poor performance.

My Office has also found that poor documentation practices have fragmented the official record, thereby reducing the Commonwealth's capacity to trace substandard performance to the root cause or responsible party. For example, the CA/T Project's sporadic failure to document negotiation of change order work and deficient contractor performance in the field can obscure problems that have major cost and schedule implications.

## **Fort Point Channel**

**Globe Finding:** The Helmes Report on the Fort Point Channel said that B/PB failed to take steps to resolve a design dispute with Maguire/Harris and an eight-month schedule delay occurred. Phil Helmes dropped his conclusion that B/PB was remiss in its management of the Fort Point Channel tunnel design only because the state would not agree to his request for more time to investigate further.

**B/PB Reply:** The underlying challenge in the design of the tunnel running under Fort Point Channel was the need for a huge excavation support wall due to weak soil conditions. Early design concepts would have increased the project cost about \$500

million. Finding a more cost-effective alternative took months of careful study. B/PB came up with several creative solutions, including soil strengthening (by mixing cement into the soil) and extended development of immersed tubes, which could be built without elaborate excavation. These innovations limited the cost increase to about \$200 million, saving \$300 million. B/PB also came up with the proposal to build the lower level of the vent structure as an integral part of tube construction, which greatly benefited the project schedule in that area. Helmes apparently told the *Globe* that he would have liked more time to investigate the issues. His official report judged that B/PB "performed with a reasonable standard of care" on "this very complicated and unique design challenge." He did not find B/PB remiss.

**Inspector General's Response:** This Office disagrees with B/PB's reply concerning a matter with which this Office has been heavily involved. This Office referred the Helmes matter to the State Ethics Commission. Upon careful review, this Office concluded that Helmes had determined B/PB appeared to be at fault in the Fort Point Channel issue. His original independent report in December 1995 suggested that if the inadequacy of B/PB's review contributed to delay in the project, then B/PB and the other designers were remiss in their responsibilities and B/PB seemed to have taken an inordinate amount of time before taking appropriate action. Then, after MassHighway directed B/PB to enter into a subcontract with Helmes' firm, his subsequent report deleted that conclusion.

## **Waivers**

***Globe* Finding:** B/PB spurned a state request in January 2002 to waive the legal limit on review of all of its work. The joint venture said it would only waive the limit on individual cases.

**B/PB Reply:** Whenever the Client has requested an extension of the statute of limitations on a specific issue, claim, or contract, B/PB agreed to such a request. B/PB has agreed to a total of nine such requests since 1994.

**Inspector General's Response:** This Office disagrees with B/PB's reply. A joint letter issued by the Inspector General and State Auditor Joseph DeNucci in October 2001 concerning B/PB's responsibility for cost overruns, stated: "We . . . believe that B/PB's recent refusal to acknowledge any responsibility for or share in the burden of paying for increasing Project cost overruns is irresponsible and unconscionable . . . B/PB is, in



effect seeking to evade all responsibility for the multi-billion cost overruns and to place the entire cost on the taxpayers and turnpike users."

## **Conflict of Interest**

**Globe Finding:** There's an inherent conflict of interest in that B/PB does preliminary design and then passes judgment on its own design work (during the final design and construction phase).

**B/PB Reply:** B/PB is responsible for the preparation of preliminary design, which is both approved by the client and used by the various section design consultants in the development and finalization of the project design. The consultants provide design development submittals to B/PB to review for consistency with B/PB's preliminary design criteria. From that point on, the design is owned by the design consultant, not B/PB.

**Inspector General's Response:** The Inspector General's Office disagrees with B/PB's conclusions and previously reached the same conclusion as the Globe. A December 2000 report by the Inspector General's Office pertaining to the Big Dig's cost recovery program states: "B/PB's multiple roles in preliminary design, final design, and cost assessment (change orders) impedes the Turnpike Authority's ability to hold B/PB accountable for its performance. The cost recovery program simply underscores the Turnpike Authority's reliance on B/PB and the vulnerabilities of that arrangement."

## **Asbestos**

**Globe Finding:** When inspectors found cancer-causing asbestos dust at a Big Dig work site in 1996, the project's private-sector manager faced a possible trial and millions of dollars of fines for flouting clean air laws.

**B/PB Reply:** "When inspectors found cancer-causing asbestos dust at a Big Dig work site in 1996," the story begins, "the project's private-sector manager faced a possible trial and millions of dollars in fines for flouting clean air laws." But state transportation officials, supposedly in thrall to B/PB, "hired a lawyer to broker an unusual settlement" that let B/PB off the hook for only \$131,000, while "taxpayers paid more than \$3 million to clean up the asbestos mess." To the contrary, no inspector ever found asbestos dust "swirling around a Big Dig work site." Moreover, despite the innuendo about brokering an "unusual" settlement, there was no backroom deal.

Here's what did happen. The state Attorney General alleged that asbestos-containing materials were removed and transported from the Analex Building site by the construction contractor in a manner that violated the state Clean Air Act and applicable regulations (including requirements for adequate wetting of material, sealing asbestos-containing materials into leak-tight containers, and disposal).

The settlement was entirely normal and aboveboard. It cost the contractors, not taxpayers, \$493,000, a substantial sum of money. The settlement was reviewed and approved in August 1999 by the Attorney General, the Massachusetts Department of Environmental Protection, and MHD and its environmental consultants.

The increased cost of asbestos abatement resulted from the unexpectedly aggressive methods required to remove asbestos-containing adhesives from concrete surfaces in the building before demolition, which led to extra work and delayed completion of the contract. There was no cost to taxpayers beyond the cost of these required activities, and specifically no added cost to address the allegations made by the Attorney General.

The Attorney General alleged that asbestos-containing materials were removed from the Analex Building site by the construction contractor in a manner that violated the state Clean Air Act and applicable regulations (including requirements for adequate wetting of material, sealing asbestos-containing materials into leak-tight containers, and maintaining air cleaning equipment). It also alleged that the contractor (not B/PB) improperly transported asbestos containing materials to a non-approved disposal site in violation of approved project shipping documents and federal and state environmental laws and regulations, and forged the shipping documents to cover up the deception.

**Inspector General's Response:** Official records contradict B/PB's response to the *Globe*. B/PB claims that no inspector ever found asbestos dust around a Big Dig work cite" and the only Attorney General allegation that concerns B/PB in a civil complaint is the manner in which a contractor (not B/PB) violated regulations concerning removal and disposal of asbestos.

This Office reviewed the formal complaint brought against the Massachusetts Department of Highways, Bechtel Corporation, Parsons Brinckerhoff Quade & Douglas, Inc., et al. by the Attorney General in 1998.

The records show that in 1996, Massachusetts Department of Environmental (DEP) inspectors on several occasions observed problems with asbestos abatement including the dry sweepings of asbestos containing material (ACM), visible emissions of air-borne

dust, dirty air cleaning filters, failure to adequately wet ACM, and breaches in containment of ACM in work areas to prevent emissions of asbestos to the ambient air.

On January 31, 1996, DEP issued a Notice of Noncompliance concerning the asbestos violations and shut the site down.

Records also demonstrate that the DEP asked B/PB to provide the agency with copies of the signed, returned manifests for shipments of asbestos waste removal. B/PB was unable to produce such records. DEP attested that it had found asbestos from this Big Dig site in a non-approved landfill.

### Confidential Documents

**Globe Finding:** Confidential project documents from 1995 reveal that B/PB knowingly hid project costs.

**B/PB Reply:** It was the responsibility of state and federal authorities to communicate with the public. Yet in another stretch of the truth, the *Globe* story manages to leave the impression that B/PB bears major responsibility for hiding costs and misleading the public. Strip away the negative images conjured up by repeated talk of "lobbyists, strategists and consultants," and what do you have? Thousands of words that fail to support the headlines.

And far from showing that B/PB called the shots, the story relates that James J. Kerasiotes, the state's top Big Dig official, along with Governor William Weld, "demanded" that B/PB remove its project manager from the Big Dig in 1994 when a public rift developed over cost estimates. At issue was the public insistence by state officials that project costs would be maintained at under \$8 billion (not counting inflation), in contradiction to B/PB's 1994 projection that total project costs would come in at around \$14 billion.

This assertion is absolutely false. B/PB has continually advised MHD/MTA about any and all cost estimates and components, as noted in the 2001 report of the state Inspector General. The IG noted that B/PB provided "uncannily" accurate cost estimates to MTA in 1994 and "insisted upon and, in fact, made full disclosure to local FHWA officials in 1994-1995" of all relevant budget assumptions.

**Inspector General's Response:** The Inspector General's Office concurs with the *Globe's* findings. In its response, B/PB fails to mention the key findings of our report concerning the cover-up of Big Dig costs. B/PB neglects to mention their complete role



in the process. This Office's March 2001 report also illustrated how B/PB developed and implemented the accounting schemes sanctioned by Big Dig and Federal Highway Administration officials in the "public relations downsizing" of the Big Dig cost estimate. Big Dig costs could have been manipulated and effectively hidden from the public and the Legislature without the active and willing participation of B/PB. This Office's report states: "What has remained unspeken is B/PB's active participation in the promulgation of misleading reports to the State Legislature. Big Dig officials would never had been able to perpetrate the inaccurate presentation of such detailed information without the active collaboration of B/PB - the entity that gathered, controlled, and manipulated all Big Dig cost data. B/PB did not participate passively. B/PB took control soon after Big Dig officials decided to obscure the true costs and after FHWA accepted the accounting assumptions."

## **Campaign Contributions**

**Globe Finding:** Because of campaign contributions, some elected officials intervened at crucial junctures in ways that helped the company avoid scrutiny.

**B/PB Reply:** The story offers not a shred of evidence, only innuendo, in support of this claim. The allegation is absurd on its face considering the intense scrutiny the project has received from the State Inspector General, State Auditor, Department of Transportation Inspector General, State Attorney General, FHWA, and MHD/MTA. None of these watchdog agencies has ever alleged that public officials intervened on B/PB's behalf.

**Inspector General's Response:** The Inspector General's Office strongly disagrees with B/PB's reply and offers the following example of an elected official who intervened to thwart criticism of B/PB and the Project. The Office of the Inspector General faced elimination because of the intervention of an elected official. In early 2001, the day before this Office released the highly critical report of the Big Dig's cost recovery program, then-Governor Paul Cellucci filed a bill to eliminate the Office. This action was in direct response to two reports issued by this Office. One report, issued in December 2000, was a compilation of technical assistance provided to the Big Dig by this Office. The Governor's staff derided this report as former Inspector General Cerasoli's "greatest

hits." The second report, which was in the hands of the Governor in draft form at the time of his action, dealt with the cost recovery program. This report was highly critical of the Turnpike Authority's failure to pursue cost recovery against B/PB and reported that the cost recovery program had only collected \$30,000 from more than \$80 million in claims. Also at this time, Governor Cellucci and his staff were aware that this Office was preparing to release a report concerning Big Dig finances that implicated top administration officials in covering up Big Dig costs since 1994. This was clear intervention by an elected official to support B/PB and the Big Dig from harsh criticism. At the time that the Governor filed this legislation, the Inspector General stated: "They took steps to block access of key information, even going so far as to try to close this Office."

### Sanitized Memo

**Globe Finding:** Michael P. Lewis, then the deputy project director, directed William Edwards of B/PB to "sanitize" the budget documents he prepared for federal officials by deleting the cost exclusion information.

**B/PB Reply:** When former state project director Peter Zuk told the *Globe* that the term "sanitize" meant clean up (simplify) rather than conceal, many readers no doubt suspected an artful dodge. But the *Globe* failed to note that minutes of the meeting clearly show that participants discussed the exclusions, and federal officials requested a copy of the exclusions as well as the associated budget assumptions.

Federal officials were kept fully in the loop. As the *Globe* well knows, the State Inspector General reported in 2001 that "B/PB insisted upon and, in fact, made full disclosure to local FHWA officials in 1994 - 1995 of each exclusion, deduction, and accounting assumption . . . and that local FHWA officials used these assumptions in their own internal analyses." As a matter of fact and public record, B/PB has always kept its client well informed on project cost and schedule matters.

**Inspector General's Response:** The Inspector General's Office strongly disagrees with B/PB's conclusion. To suggest that "sanitized" means "simplify," in the context of this memorandum starkly contradicts the history underlying it. What was sanitized from the memorandum was a set of disclosures that was necessary for federal officials to understand the true meaning of the Big Dig cost estimate. What is most significant about this memorandum is that it demonstrates the clear intent of Big Dig managers at

the time to be less than forthright with the federal government. The Inspector General considered this memorandum to be so significant that he appeared before a hearing of the Joint Transportation Committee in April 2001 with this memorandum blown up to poster-size for display asking for an investigation into this matter. In fact, this memorandum is one of the subjects of the ongoing SEC investigation of the Big Dig. The Oxford Dictionary defines "sanitize" as used in slang as follows: "to render more acceptable, clean up, as by the removal of undesirable, improper, or confidential material."

### **B/PB Meeting in Boston**

**Globe Finding:** Top B/PB executives flew in with a surprising offer: The company would give the state up to \$50 million to pay for past mistakes. After B/PB met with the governor's chief of staff, the afternoon meeting with MTA never took place and B/PB rescinded its offer.

**B/PB Reply:** In a report issued in 2001, the Massachusetts Inspector General noted that two senior Bechtel officials flew to Boston in December 1994 to personally inform the governor and his senior advisers about the true cost estimate. In addition, the Inspector General stated, "B/PB insisted upon and, in fact, made full disclosure to local FHWA [Federal Highway Administration] officials in 1994-1995 of each exclusion, deduction, and accounting assumption comprising the \$6 billion difference."

The *Globe* completely misrepresents B/PB's offer, which included no admission of wrongdoing but responded to the state administration's urging that B/PB find ways to "share the pain." B/PB brought three options to the table at a morning meeting.

**Inspector General's Response:** The Inspector General's Office strongly disagrees with B/PB's response. A joint letter issued by the Inspector General and State Auditor Joseph DeNucci in October 2001 concerning B/PB's responsibility for cost overruns, stated that: "We . . . believe that B/PB's recent refusal to acknowledge any responsibility for or share in the burden of paying for increasing Project cost overruns is irresponsible and unconscionable . . . B/PB is, in effect seeking to evade all responsibility for the multi-billion cost overruns and to place the entire cost on the taxpayers and turnpike users." In the Inspector General's Office March 2001 report, the Office states: "What has remained unspoken is B/PB's active participation in the promulgation of misleading



reports to the State Legislature. Big Dig officials would never have been able to perpetrate the inaccurate presentation of such detailed information without the active collaboration of B/PB - the entity that gathered, controlled, and manipulated all Big Dig cost data. B/PB did not participate passively. B/PB took control soon after Big Dig officials decided to obscure the true costs and after FHWA accepted the accounting assumptions." Again, B/PB fails to mention the Inspector General's main conclusion about B/PB's role in the Big Dig cost cover-up.

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## ***Selected CA/T Project Oversight Reports and Letters Issued by the Massachusetts Office of the Inspector General (1991-2003)***

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### **1991**

- The Inspector General issued a report identifying fundamental flaws in the selection process used to obtain CA/T Project audit services from private firms, including inadequate planning and analysis, vulnerability to favoritism, and unnecessarily costly contracting practices. The report recommended a prudent, cost-conscious procurement process for audit services.
- The Office criticized MassHighway's Project Management Plan for failing to clearly describe MassHighway's oversight role, failing to show how Bechtel/Parsons Brinckerhoff (B/PB) would be held accountable for bringing the Project in on time and within budget, and inappropriately assigning key Project oversight roles to B/PB.
- The Office advised the Executive Office of Transportation and Construction that a financing plan prepared by Lazard Freres & Company was erroneous and misleading: it overstated MassHighway's progress on design of the CA/T Project, omitted key factors that could dramatically increase Project costs and delay the Project schedule, and failed to provide a reliable and objective analysis of the Project's future costs, including operations and maintenance costs.

### **1992**

- The Office wrote to the Project Director regarding MassHighway's reimbursements of more than \$2.11 million to B/PB for the cost of relocating the families of B/PB employees hired to work on the CA/T Project. The Office identified wasteful management practices, including poor documentation, lack of oversight, and specific abuses of the reimbursement system.

### **1993**

- The Inspector General issued a report criticizing MassHighway's lack of planning, frequent disregard for cost, and repeated missteps in the development of the Operations Control Center Complex, a multimillion-dollar building complex housing administrative and maintenance functions, including a \$95 million control system, for the CA/T Project. The report recommended a series of corrective actions to reduce the Commonwealth's exposure to waste and public safety problems.
- The Office advised MassHighway that MassHighway lacked the expertise and resources to conduct a meaningful review of the effectiveness of the its



relationship with B/PB and expressed concern that MassHighway and B/PB seemed to have melded into a single unit. The Office recommended that MassHighway develop the internal capacity to manage its contractual relationships competently and cost-consciously and to provide effective oversight of B/PB.

- The Office wrote to MassHighway warning that cost savings from the proposed Alternative Dispute Resolution (ADR) Program for the CA/T Project were unsubstantiated and that the ADR Program created another avenue for contractors to pursue payment over and above the original bid amount. The Office recommended specific improvements aimed at increasing the accountability, clarity, and cost-effectiveness of the ADR Program.
- The Office documented a pattern of apparently excessive use of contract modifications and change orders associated with design and construction-related contracts on the CA/T Project. The Office advised MassHighway that the large number of design contract modifications portended construction cost escalation far beyond the estimated \$7.7 billion price tag.

#### 1994

- The Inspector General issued a report revealing that MassHighway and B/PB had mismanaged an eight-year, \$10.9 million contract with DeLeuw, Cather & Company to design the CA/T Project's integrated project control system. The report documented massive cost overruns, schedule slippages, poor performance, and contract violations that B/PB as contract manager had failed to address. Warning that these problems were not unique, the report recommended that MassHighway institute a series of contracting safeguards, cease the practice of using contract modifications and change orders to make up for incomplete preliminary and final design work, and increase the contract administration and technical staff assigned to the CA/T Project.
- The Inspector General issued a report revealing that the CA/T Project's value engineering program, which was managed by B/PB, had been plagued from the beginning by a lack of independence, delays, misinformation, management errors, and an absence of management commitment to value engineering. The report found that MassHighway had forgone and was continuing to forgo opportunities to simplify designs and achieve significant cost reductions. Although the value engineering program had identified cost-saving recommendations estimated to save \$2.8 billion, the recommendations implemented by the CA/T Project had saved only an estimated \$325 million. In one case, MassHighway's poor planning, erratic decision-making, and overreliance on B/PB led MassHighway to reject a value engineering recommendation that could have saved taxpayers an estimated \$13 million. The report concluded that significant opportunities for controlling costs through value engineering still remained and recommended eliminating B/PB from its pivotal role in managing the value engineering program, conducting a

comprehensive review of the program, and remodeling the program to ensure its independence and usefulness as a cost control tool.

- The Inspector General issued a report criticizing MassHighway's internal audit function for the CA/T Project. The report found that inefficient internal audit processes, audit delays, untimely audits, and insufficient audit staff resources jeopardized federal reimbursement for the CA/T Project, thereby risking an unnecessary increase in the state's share of CA/T Project costs. The report recommended specific measures aimed at strengthening MassHighway's internal audit procedures and capacity.
- The Office notified MassHighway that it had violated a state law requiring survey services to be awarded to the lowest responsible and eligible bidder by paying B/PB more than \$9.4 million for survey services provided through a B/PB subconsultant.
- The Office notified MassHighway that its sole-source, negotiated, \$5.5 million procurement of Inverset Technology violated the state's public works bidding law.
- The Office alerted MassHighway to large change orders and contract administration problems on a \$32 million construction contract to relocate the Porter Street outfall sewer. The value of the contract had grown by 56 percent since 1991. The Office also found that B/PB, which managed the contract on behalf of MassHighway, had failed to adequately document the change orders or to take effective action in response to the contractor's noncompliance with contract specifications.
- The Office criticized B/PB's deficient handling of a no-bid, \$414,700 change order for odor control measures on MassHighway's third harbor tunnel construction contract. B/PB had failed to anticipate the need for the change order, had allowed the tunnel contractor to violate project procedures, and had underestimated the cost of the change order work. The Office recommended that MassHighway revamp its change order process by requiring B/PB to obtain competitive prices and to justify the approach and price of each change order.
- The Office informed MassHighway that MassHighway's procurement of a \$231,526 fireboat for the city of Boston violated the state's procurement statute, that MassHighway had paid \$100,000 more than the actual cost of the fireboat to the contractor, and that because the FHWA had declined to participate in funding the fireboat, the full cost was borne by Massachusetts taxpayers.

## 1995

- The Inspector General issued a report revealing that internal control weaknesses in the CA/T Project's asset management system, which was

managed by B/PB, could lead to theft, fraud, and misuse of the Commonwealth's assets. The report recommended that MassHighway adopt a series of corrective actions, including procurement of an independent audit of B/PB's procedures.

- The Inspector General, the Attorney General, and the State Auditor sent a joint letter to the Secretary of Transportation and Construction regarding MassHighway's practice of assigning staff (referred to as "seconded" employees) paid by private firms through MassHighway's contract with B/PB to perform MassHighway functions on the CA/T Project. The joint letter warned that this arrangement created divided loyalties, resulted in pay and benefit inequities among staff performing similar functions, created the appearance of a conflict of interest, and could violate state law. The joint letter recommended that MassHighway abandon the practice, provide eight top managers funded by B/PB with training on the state's conflict of interest law, and ensure that all key B/PB personnel were duly designated in the contract.
- The Office advised MassHighway of problems with the CA/T Project's use of waivers to state service contracting regulations. Specifically, the CA/T Project's practices violated state service contracting regulations, put the Commonwealth and its consultants at financial risk, and produced waivers that misstated the cost of the services for which waivers were granted and the amount of funding to be provided by the FHWA.
- The Office criticized MassHighway and B/PB for mismanaging a contract with DeLeuw, Cather & Company for the CA/T Project's integrated project control system. Problems cited by the Office included tolerance of cost overruns and poor consultant performance, waste of \$600,000 for an "independent" assessment of the contract by B/PB's home office staff, and recovery of only \$1.7 million when only 20 percent of the \$6.5 million contract had been delivered. The Office also warned MassHighway that its pending plans to add nearly \$7 million in services to the contract with DeLeuw, Cather & Company would violate state services contracting regulations.
- The Office wrote to MassHighway criticizing the CA/T Project's planned \$107 million project known as "Parcel Seven." The Office found that the CA/T Project had failed to conduct a value engineering review, to comply with the state designer selection law, and to identify and estimate the cost of mitigation measures called for in the contract.

1996

- The Office warned MassHighway that its near-total reliance on B/PB created significant and unnecessary financial risk, ignored cost containment opportunities from competition in the marketplace, and failed to serve pressing accountability requirements. The Office pointed out that MassHighway was not holding B/PB accountable for meeting the CA/T



budget and schedule or for producing deliverables or other measurable results. Instead, MassHighway was paying B/PB on a cost-plus-fixed-fee basis. The Office recommended reconfiguring MassHighway's contractual relationship with B/PB.

- The Inspector General issued a report on the CA/T Project's value engineering change proposal program, a cost containment effort that allows construction contractors to recommend design or construction changes to improve efficiency or lower costs. The report revealed that MassHighway and B/PB were not aggressively pursuing or managing this and other cost control programs to meet the goal of bringing the CA/T Project in on time and within budget. Of the \$17 million in estimated savings from changes recommended by the contractor, only \$1.7 million, or 10 percent, had been accepted by the CA/T Project during the period reviewed.
- The Office criticized B/PB's handling of an internal investigation of an allegation of deficient B/PB construction management practices. The Office's 1995 review of B/PB's response revealed that B/PB had ignored some of its own audit findings, inaccurately reported its findings to MassHighway, ignored MassHighway's directions to pursue certain issues, and compromised the independence of a second audit of B/PB's construction management practices. The second phase of the Office's review criticized B/PB's failure to comply with key Project policies aimed at containing costs and safeguarding public funds. B/PB also failed to effectively monitor and document its own activity. The Office recommended that MassHighway increase its oversight of construction management by developing an independent quality assurance program.
- The Office advised MassHighway to exercise caution in implementing a proposed pilot project to accelerate the bid, evaluation, and award cycle on the CA/T Project. The Office's analysis indicated that the causes of the CA/T Project's excessively lengthy bid cycle extended far beyond the focus of the pilot project to B/PB's project management problems. The Office found that addenda and change orders were routinely used to make up for incomplete designs and poor planning and coordination. Accordingly, the Office advised MassHighway to save time and money by curtailing its practice of using addenda to manage design or construction work after advertising the work.
- The Office criticized MassHighway's handling of the construction of Ventilation Building No. 3 on the CA/T Project. The Office's review disclosed that MassHighway did not employ two cost containment measures and that the estimated contract cost had increased by 60 percent with little explanation. In addition, the Office found that inadequate planning and a complicated right-of-way agreement could increase CA/T Project costs in the future.

- The Office alerted MassHighway to problems in the CA/T Project's process for selecting a geotechnical instrumentation firm for a \$17 million contract. These problems included vague selection criteria, the risk of "bait-and-switch" tactics by potential contractors, and overreliance on B/PB in the selection process.
- The Office sent a letter to the CA/T Project summarizing the Office's key findings and recommendations resulting from statutorily mandated contract reviews conducted by the Office between 1994 and 1996. The Inspector General subsequently issued a report containing a compilation of the reviews and the Project's written responses. The major corrective measures recommended by the Office in these reviews focused on instituting proactive and aggressive cost containment measures, analyzing the causes of cost estimate increases, minimizing the use of no-bid change orders, clearly defining mitigation commitments in construction contracts, obtaining federal funding approvals before the construction cycle begins, and maximizing federal funding.

## 1997

- The Inspector General issued a report on the CA/T Project's materials testing laboratory function. The report disclosed that at least \$5 million had been spent unnecessarily for design, renovation work, relocation expenses, and fees paid to B/PB in connection with the laboratory. The report criticized B/PB for failing to provide MassHighway with accurate cost information or consider using existing laboratories, and for giving no-bid work worth \$621,000 to a Bechtel subsidiary.
- The Inspector General warned the Legislature that the proposed metropolitan highway system bill constituted a wholesale grant of powers to the Massachusetts Turnpike Authority that unnecessarily increased the Commonwealth's financial vulnerability in the construction, operation and maintenance of the CA/T Project. The Inspector General expressed concern that the cost of the CA/T Project would ultimately exceed \$12 billion. The Inspector General recommended amendments to the bill, including sunset provisions; debt issuance safeguards; and controls over real property dispositions by the Turnpike Authority. The Inspector General communicated his objections in writing and underscored his concerns during a meeting with the House Committee on Long Term Debt and Capital Expenditures.
- An investigation by the Office disclosed evidence that copper cable had been cut and removed from a CA/T Project building storing electrical equipment and approximately \$300,000 of copper cable purchased for the CA/T Project. The Office also discovered that the building was not secure and that the equipment and material stored in the building were not adequately inventoried. The Office informed MassHighway of the problem and

recommended measures to secure the building and inventory all warehoused equipment and materials.

- The Office sent a letter to MassHighway reporting on the Office's examination of the cost of the early opening of the third harbor tunnel, now known as the Ted Williams Tunnel. The Office's review disclosed that MassHighway had underestimated the cost of, and might have overestimated the economic benefits of, the accelerated early opening; the Office also found that the FHWA did not fund all early opening cost. The Office expressed concern that costly early opening initiatives would in the future increase the financial burden of the CA/T Project on Massachusetts taxpayers.
- The Office expressed concern to MassHighway regarding the CA/T Project's failure to aggressively pursue all available cost containment measures, including value engineering reviews, claims avoidance reviews, and peer reviews. The Office also criticized MassHighway's slow delivery of documents and failure to produce certain evidence until after public criticism by the Office.
- The Office advised MassHighway that B/PB's bidder attraction program was a poorly conceived and mismanaged effort to increase competition for CA/T construction contracts. B/PB had not developed an adequate scope and action plan for the project, had used an incomplete and subjective methodology in selecting firms to contact, had violated state procurement policy in hiring a program subcontractor, and had hired a subcontractor that appeared unqualified for the job.

## 1998

- The Inspector General issued a report on the CA/T Project's handling of two no-bid change orders amounting to \$850,000 on a \$78.2 million tunnel finishes contract, which had increased by 58 percent over the original bid amount. The report revealed a host of problems, including poor design specifications for anchor bolt installation, unclear bolt testing procedures, payment for improper installation of anchor bolts, and poor coordination between designers and contractors. The report recommended a series of measures designed to improve the CA/T Project's construction contract specifications, design coordination, contractor oversight, and cost recovery actions.
- The Office conducted a review of the CA/T Project's East Boston Toll Facility contract showing that the CA/T Project was not implementing its own cost containment program, that it had seriously underestimated the cost of the facility, that it had incurred unnecessary costs, and that it had failed to prepare a life-cycle cost analysis for the facility. The Office's review also revealed that the design calculations relating to loads on the toll plaza canopies were not prepared by a Massachusetts registered engineer and that they had not been reviewed or checked by a senior architect or engineer at



the design firm responsible for the calculations. These calculations did not appear to take into account wind against the north side of the canopies and weight of signage on the canopies, thus creating a potential public safety hazard. The Office recommended that MassHighway take steps to address these problems.

- The Office provided MassHighway with the results of a review of the CA/T Project's resident engineer filing system. The Office found weaknesses in the collection and maintenance of information by B/PB field staff. The Office advised MassHighway to hold B/PB accountable for maintaining project records vital for contractor accountability and protection of the public interest.
- The Office sent MassHighway a letter criticizing the CA/T Project's request for qualifications/proposals for public information outreach services estimated to cost \$2 million. The Office pointed out that spending public funds to sell the CA/T Project to a public that is already paying for the Project was wasteful, especially in view of the public information staff and subconsultants already in place in the B/PB organization.
- The Office informed the Executive Office of Transportation and Construction, the Massachusetts Bay Transportation Authority, the Massachusetts Port Authority, MassHighway, the Turnpike Authority, and the CA/T Project of the cost-saving potential of the CA/T's materials testing program. The Office's review of other materials testing programs revealed that some entities paid different prices for the same services offered by testing firms. The Office recommended that the entities included in the review consider the options of establishing a statewide materials testing laboratory, establish a statewide blanket contract for testing services, and establishing interagency agreements for testing services.

## 1999

- The Office's review of documents relating to the CA/T Project's Ventilation Building No. 1 revealed that the Commonwealth had apparently paid twice for the design of a portion of the building. In addition, B/PB had prepared the final design drawings for a portion of the building; thus, B/PB as project manager was reviewing, critiquing, and approving its own work in circumvention of the CA/T Project's system of accountability. The Office's review disclosed no evidence that the CA/T Project had prepared a life-cycle cost analysis comparing the operating and maintenance costs of different design options; it also disclosed that the CA/T Project had failed to comply with certain public notice requirements contained in M.G.L. c. 149. The Office also expressed concern that certain project drawings had not been stamped, signed, and dated by a professional engineer registered in Massachusetts. On this ventilation building and another (No. 5) in South Boston, the Office warned of potentially costly problems arising from site access delays. The Office advised the CA/T Project that some of the issues identified in the



Office's reviews might warrant withholding approval for the commencement of work on these two contracts under Section 67 of Chapter 205 of the Acts of 1996.

- The Office's review of documents relating to the CA/T Project's Ventilation Building No. 8 disclosed that the building design interfered with an easement granted to the Fleet Center by MassHighway, necessitating significant redesign work estimated to cost the CA/T Project \$2.5 million more than originally planned. The Office questioned the CA/T Project's failure to consider some of the cost savings identified during the redesign effort, such as elimination of some rooms and simplification of the roof design. The Office estimated that a value engineering review of the design could have generated cost savings of as much as \$1 million. The Office also found that the CA/T Project had not conducted a formal claims avoidance review for the contract, nor had the CA/T Project completed a formal life-cycle cost analysis for the contract. The Office criticized the CA/T Project for considering cost control measures only in response to unanticipated cost increases, rather than implementing such measures in the normal course of business. The Office also criticized the CA/T Project's practice of allowing design work to be authorized based on oral direction from Project staff, in contravention of the procedures set forth in the contract. The Office expressed concern about possible errors and inconsistencies in the design drawings, including fire protection drawings. Finally, the Office found that hundreds of drawings lacked a stamped seal and dated signature of a professional architect or engineer registered in Massachusetts.
- The Office's review of documents relating to the CA/T Project's pending East Boston toll facility construction contract, estimated at \$7.5 million, disclosed numerous drawings that either lacked professional seals or bore illegible seals. The Office questioned the high design cost for the toll facility relative to its estimated construction cost. The Office also criticized the CA/T Project for failing to redesign the toll booth canopies – at an estimated savings of nearly \$1.5 million – until after the designer had prepared the original bid package. The Office's review found no evidence that the CA/T Project completed a formal life-cycle cost analysis for the contract; such a review might have led to this redesign earlier, thereby avoiding the schedule impact of last-minute redesign work.
- The Office provided comments and recommendations on the CA/T Project's Request for Qualifications and Proposal (RFQ/P) for the Central Artery Corridor Master Plan. The Office's recommendations focused on clarifying the scope of services, procedural requirements, and evaluation criteria contained in the RFQ/P; providing a level-playing field throughout the process for all proposers; documenting the selection process; and ensuring that the terms and conditions of the Turnpike Authority's executed contract are

consistent with the terms and conditions of previous CA/T Project contracts executed by MassHighway.

- The Inspector General issued a report alerting the Legislature to at least four steps the Office had recommended to the CA/T Project as a result of legislatively mandated reviews: conduct cost containment reviews; identify future operations and maintenance costs; identify and explain cost estimate increases; and comply with professional engineering practices. Noting that the letters targeted issues at the heart of cost and performance, the report provided a compilation of the reviews and the Project's written responses.

## 2000

- The Office wrote to the CA/T Project regarding the Incentive Fee Program, used on the CA/T Project's tunnel finishes contract, under which the construction contractor was given a financial incentive to meet or beat contract milestone dates, to mitigate certain delays without filing financial claims, and to work more cooperatively and efficiently with other contractors and CA/T Project staff. The Office's review revealed that Incentive Fee Program provisions contained inadequate safeguards against fraud, waste, and abuse. Specifically, the Office criticized the Program's lack of contractor oversight, its discretionary and subjective rating system, the unilateral authority of a single manager to change Program rules, and the lack of Program procedures and documentation requirements. The Office also expressed the view that the Program could violate Massachusetts public bidding laws. The Office recommended a series of measures to improve the Program, including evaluating the Program costs and benefits, developing objective criteria for contractor performance evaluation, strengthening Program rules and safeguards, and instituting disincentive clauses to discourage poor contractor performance.
- The Inspector General sent a letter to a Joint Special Commission of the Legislature expressing his views concerning the CA/T Project's \$1.4 billion cost overrun first reported by Project leadership in February 2000. The Inspector General advised the Special Commission that state oversight agencies had not received the CA/T Project's October 1999 Finance Plan until February 17, 2000 and that the October 1999 Finance Plan provided no warning of the \$1.4 billion overrun. Moreover, the October 1999 Finance Plan was not responsive to the legislative mandate in the Metropolitan Highway System legislation enacted in 1997; this legislation specifically required that the CA/T Project report on the CA/T Project status and schedule as well as the Commonwealth's ability to fund the state's share of the CA/T Project. In the letter, the Inspector General reiterated his position that the "partnering" model on which the contractual arrangement between MassHighway and B/PB is based fails to promote accountability and impedes rigorous oversight of the consultant's performance. The Inspector General pointed out that the Office had warned years ago that CA/T Project costs could exceed \$12 billion

and had repeatedly criticized CA/T Project managers for failing to implement cost containment measures such as value engineering in the early stages of the Project, when such measures could have had the greatest impact. The Inspector General urged the Special Commission to scrutinize the full life-cycle costs of the CA/T Project, including debt costs and operation and maintenance costs. Finally, the Inspector General advised the Special Commission that the Office had not consistently received timely information from the CA/T Project and that no oversight agency, including the Office, has been given access to the CA/T Project's Oracle database, despite repeated requests.

- In a May 2000 letter, the Office alerted the newly appointed Turnpike Authority Chairman to major management control issues and areas of systemic vulnerability to fraud, waste, and abuse that the Office identified during nearly nine years of CA/T Project oversight. The Office urged the Chairman to address three recurring themes in order to help restore faith in the CA/T Project and ensure its ultimate success. First, the Commonwealth's excessively broad project management contract with B/PB has impeded effective cost control and oversight, undermined public accountability on the CA/T Project, and eroded the Commonwealth's contracting leverage. Second, the current management organization of the CA/T Project undermines the essential arm's length relationship between the Commonwealth and B/PB. Third, deficient management practices on the CA/T Project have reduced the Commonwealth's capacity to generate accurate cost estimates on individual contracts, control spending, and predict and control future costs. The Office concluded that the systemic management deficiencies outlined in the letter and documented in an attached 15-page listing of related Office reports and letters contributed to the escalating cost of the CA/T Project.
- In December 2000, the Inspector General issued a detailed report entitled *A Review of the Central Artery/Tunnel Project Cost Recovery Program*. The review disclosed that in six years, the Project had only recovered \$30,000 from about \$83.5 million in cost recovery related change orders; that the Project had set up the cost recovery program primarily to ensure federal funding, not to recover costs; and that B/PB's overly broad role in Project management undermined the Commonwealth's ability to hold B/PB accountable for its design work. The Project had not adequately documented cost recovery cases and, in some cases, had failed to assess accurately the full cost impact of deficient design work. The report showed that Project management had eliminated an effective method for catching potential cost recovery actions that B/PB may have missed and recommended a series of corrective actions aimed at using the cost recovery program as a tool to recover costs and hold Project participants accountable.



- In December 2000 the Inspector General issued a report containing correspondence regarding management issues and recommendations in 22 technical assistance reviews conducted by the Office since 1993 at the request of Project officials. These reviews examined complex design and construction management problems, commented on procurement processes, and clarified legal compliance requirements. Throughout the 22 reviews undertaken at the Project's request, the Office consistently urged the Project to develop the internal organizational capacity to monitor and control costs on management consultant, design, and construction contracts; define performance standards and work products to be delivered under contract and hold vendors accountable for performance; guard against conflicts of interest and the appearance of impropriety; avoid sole source procurements; and develop clear Project procedures and guidelines.

## 2001

- In a May 2001 letter to the Project, the Office summarizing the findings of a review relating to the \$10.9 million Dewey Square Air Intake Structure, a planned three-story building that will provide fresh air supply and exhaust capabilities, and facilities for project control systems. The contract includes the building construction, supports for two ventilation fans, exterior site improvements, temporary street lighting, and maintaining the realigned Atlantic Avenue Bypass Roadway. The Office's review identified a number of concerns regarding cost, compliance, and planning. For example, the Office questioned the expenditure of an estimated \$300,000 for architectural features to support future development by third parties that may never materialize. The Office raised concerns about the Project's failure to complete a formal life-cycle cost analysis. The Office criticized the Project, as it has in the past, for failing to comply with the requirements of the Massachusetts Board of Registration for Professional Engineers. The Office also identified errors and inconsistencies in the drawings and urged the Project to correct the problems. The Office expressed concern about the potential for added costs due to contract interface and site access restraints, in part because connecting the air intake structure would be performed under a different contract. The Office also noted that the Project had not provided documents to the Office in a timely manner and had not yet complied with certain notification requirements under M.G.L. c. 149.
- In October 2001, the Acting Inspector General sent a joint letter with the State Auditor to the Board of Directors of the Massachusetts Turnpike Authority. This letter supported the Board's initiative to hold B/PB accountable for its share of responsibility for Big Dig cost overruns. The two offices also offered assistance to the Board for this initiative to recover from B/PB every dollar it owes to the citizens of the Commonwealth. The two offices stated that B/PB was seeking to evade responsibility for the multi-billion dollar cost overruns and to place the entire cost on the taxpayers and turnpike users. The two



offices stated their mutual intention to obtain previously undisclosed financial information from B/PB to assist in cost recovery actions against B/PB. Since 1990 both offices have reported numerous times that B/PB's contract mismanagement, deficient practices, and poor performance have led to the Project's increased costs.

## 2002

- In a May 2002 letter, the Acting Inspector General advised the Project Director of issues arising from the Office's statutorily mandated review of a pending \$19.2 million contract for ancillary facilities north of the Gilmore Bridge. The issues, which could be instructive for remaining Project efforts, included the Project's failure to include the cost of the contract in the total Project cost estimate until June 2000; the approximately \$1 million cost associated with placing the final design on hold for approximately three years; the likelihood that extended access restraints could significantly increase the contract cost, and the importance of conducting life-cycle cost analyses on a routine basis.
- In June 2002, the Acting Inspector General wrote to the Chairman of the Turnpike Authority regarding the Federal Highway Administration (FHWA) review of \$30 million in Project staffing costs. A decision by the FHWA to apply these staffing costs to the Project's federal funding cap would be an arbitrary reversal of FHWA policy that would add to the already great burden placed on Massachusetts taxpayers and tollpayers paying for the Project. The letter noted that documents obtained by the Office showed that as early as 1994, FHWA officials knew about and condoned the exclusion of these staffing costs from the Project's total cost definition. In 2000, when the Turnpike Authority added staff costs to the Finance Plan, FHWA officials did not question the continued exclusion of pre-1996 staff costs. The letter concluded that the FHWA had had ample opportunity over the previous 15 years to question costs that it had approved and continued to pay for year after year.
- In October 2002, the Inspector General wrote to the Secretary of the U.S. Department of Transportation in support of the Turnpike Authority's position that the full proceeds from the sale of the CA/T Project headquarters at 185 Kneeland Street in Boston should be used to pay for Project costs, in accordance with longstanding federal policy. The letter provided relevant historical information, contained in documents obtained by the Office during an earlier Project investigation, showing that the Project on 20 different occasions between June 1998 and January 2000 had reported to the FHWA and other oversight agencies that Project costs reflected a credit for the sale of the Kneeland Street Building. Moreover, the FHWA had reviewed and approved at least 12 Project finance plans with the understanding that the sale of air rights and real estate would be used to defray Project costs. The Inspector General strongly recommended against overturning the FHWA's

policy and noted that doing so would cost Massachusetts taxpayers and tollpayers an additional \$87 million.

- In November 2002, the Inspector General wrote to the Chairman of the Turnpike Authority to recommend that the Office of the Inspector General and the Turnpike Authority take immediate action to coordinate a cost recovery review of the CA/T Project with the assistance of independent expert consultants in law, engineering, and construction. The letter noted that the Turnpike Authority had implemented a number of important and worthwhile reforms over the previous year, and that the cumulative effects of such reforms had been to correct deficiencies from prior Turnpike Authority management and to better position the Project to prospectively control cost growth resulting from contractor claims.

## 2003

- In February 2003, the Inspector General issued *A Recommendation for Cost Recovery Against the Big Dig's Management Consultant*, a report on grout heave-related claims on the C11A1 contract. The report identified \$65 million in Project construction cost increases relating to ground movement, or "grout heave," that may be attributable to deficient work on the part of B/PB. Specifically, the report found that these grout heave-related costs may be attributable to B/PB's failure to anticipate construction difficulty, prepare adequate contract specifications, conduct an adequate ground monitoring operation, investigate and gather sufficient information regarding contractor claims, and document evidence and decisions. Although B/PB stated that its actions saved money by maintaining the Project schedule, the Office concluded that B/PB may have been the cause of these multimillion-dollar claims. However, B/PB had shifted responsibility for the claims onto the Commonwealth, thereby nullifying the need for Turnpike Authority officials to determine why grout heave was not anticipated.

## **Acknowledgments**

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The Office of the Inspector General hereby acknowledges the contributions of the following individuals to cost recovery efforts on the Big Dig:

**Governor Mitt Romney** – Responding to the *Globe's* three-part series on the Big Dig, the new Governor's call for an independent claims review effort demonstrated the Commonwealth's commitment to holding Bechtel/Parsons Brinkerhoff (B/PB) accountable for its mistakes.

**General Court** – Continuing its commitment to recoup costs paid to B/PB for substandard performance on the Big Dig, each branch of the Legislature voted without opposition to extend the deadline by which cost recovery suits could be brought against B/PB. Notably, an I.G. report entitled, *A History of Central Artery/Tunnel Project Finances 1994 – 2001* issued in March 2001 included a finding faulting B/PB for not informing the Legislature of cost-minimizing accounting assumptions used to impact the total \$13.8 billion cost forecast for the Big Dig. This Office found that B/BP shirked its contractual duty to report by concealing information from the State Legislature. This Office found that B/PB knew that the public, the press and the State Legislature had not been told that Big Dig officials based the estimate on a deceptively downsized definition of the cost forecast for fear of "adverse" political reactions.

**The Auditor of the Commonwealth A. Joseph DeNucci** – The Auditor has continued to review and assess the controls that the Big Dig has in place for estimating, monitoring, and controlling project costs. The Auditor has issued 19 reports documenting \$550 million in cost overruns and available savings opportunities. For many years the Big Dig consistently rejected Auditor DeNucci's recommendations. The relationship between Big Dig officials and the Auditor reached such a low point due to the Turnpike Authority's refusal to effect the Auditor's recommendations that DeNucci once referred to former Turnpike Authority Chairman, James Kerasiotis, as "Saddam Hussein."

**Attorney General Tom Reilly** – Deterring fraud, false claims, environmental offenses, larceny, and tax evasion, the oversight and enforcement efforts of the Attorney General have lead to significant prosecutions and financial recoveries. The Attorney General has also hired a construction and financial consulting firm to provide expert advice and guidance on CAT project finances.

**Secretary of the Commonwealth William Francis Galvin** – Secretary Galvin introduced a bill that received unanimous approval in both branches of the Legislature, giving the Commonwealth 10 additional years to bring claims against B/PB. He has also pledged to review Big Dig record keeping procedures for proper compliance.

**Massachusetts Turnpike Authority Vice Chairman Jordan Levy** – In October 2001, Jordan Levy proposed to the Turnpike Authority Board of Directors a comprehensive cost recovery initiative that centered on removing B/PB from the initial determination of



potential cost recovery claims. Working in coordination with Chairman Matthew Amorello, he is the person most responsible for advocating for and implementing reforms at the Big Dig. His initiative additionally called for moving the claims review process in-house and engaging independent engineers and experts who would work directly for the Turnpike Authority to review B/PB's performance in areas including design and construction management.

**Massachusetts Turnpike Authority Chairman Matthew Amorello** – During the last year, this individual has spearheaded the adoption of each of Vice Chairman Levy's initiatives, including the engagement of an independent claims review panel chaired by former Judge Edward Ginsburg. The panel has hired former MWRA Counsel, Richard Goldstein. Mr. Goldstein has directed a cost recovery program at the MWRA, which this Office has consistently praised and publicly contrasted to the feeble cost recovery efforts at the Big Dig. Under the stewardship of Chairman Amorello and Counsel Michael Powers, the Office of the Inspector General has, for the first time in a decade, received the Turnpike Authority's cooperation and commitment to cost recovery against B/PB.

**Former Acting Governor Jane Swift** – In October 2001, Acting Governor Jane Swift publicly endorsed cost recovery reforms recommended in a joint letter issued by the Acting Inspector General and the Auditor of the Commonwealth. She is responsible for bringing on Chairman Amorello. With respect to the toll increase controversy, she took an unpopular position to meet the obligations of the prior Governor and Turnpike Authority leadership. While this front-page controversy played out, her diligent efforts to reform the cost recovery system continued.

**Former State Treasurer Shannon O'Brien** – The Office of the Inspector General's report, *A History of CA/T Project Finances 1994-2001*, credited the Treasurer's Office for forcing public disclosure of Big Dig cost overruns. Chief of Staff Michael Travaglini, together with Pat Landers and Jeff Stern, were instrumental in blowing the whistle on Big Dig cost overruns.

**Former Inspector General Robert Cerasoli** – Gregory Sullivan's predecessor issued 14 reports, 75 letters and 400 recommendations, documenting a history of aggressive oversight of the Big Dig by the Office of the Inspector General between 1991 and 2001. Former Inspector General Cerasoli questioned \$800 million in specific Big Dig costs. He was confronted with tremendous resistance, including an attempt by then-Governor Cellucci to eliminate the Office in response to a draft report issued to the then-Governor entitled, *A Review of the Central Artery/Tunnel Project Cost Recovery Program*.

2/27/03



